Laboratory Technical Report N° 1

Topic	Materials Basic properties &Binders	
Group 2	1	Raul Zamudio
	2	Sebastian Tocuyuche
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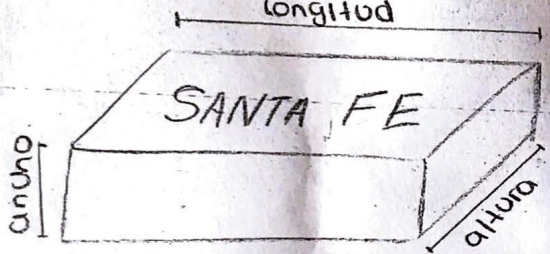
	4	Alejandra Chaucaro
	5	Valentina Peroto.
	6	
Date	23 07 19	class group 6 — Hour 10 - 11

1.General aspects

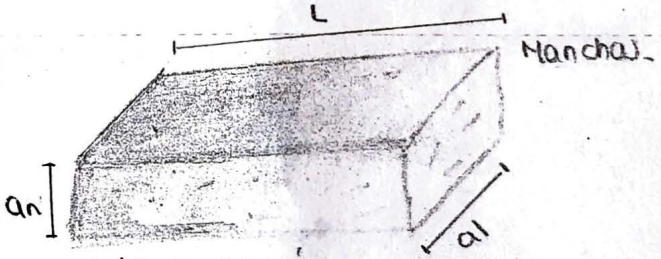
Samples description (Conditions and variability, color, odor, moisture)

textura: liso.
color: Naranja Rojizo.
compacto.



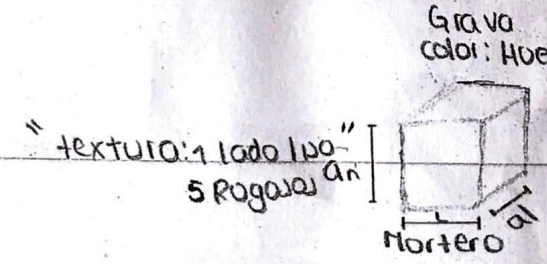
ladrillo prensado

textura: Perozo.
color: Amarillo - Naranja

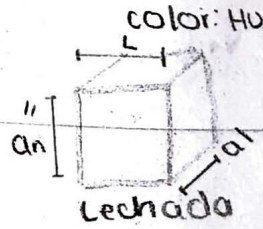


Ladrillo común

Grava
color: Huezo



color: Huezo.

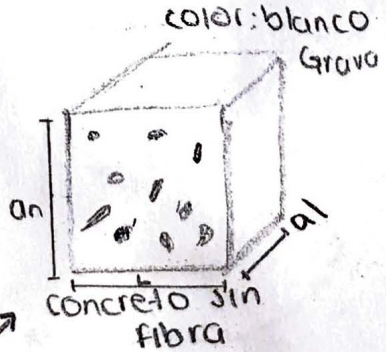


Lechada

color: blanco
Grava gruesa.

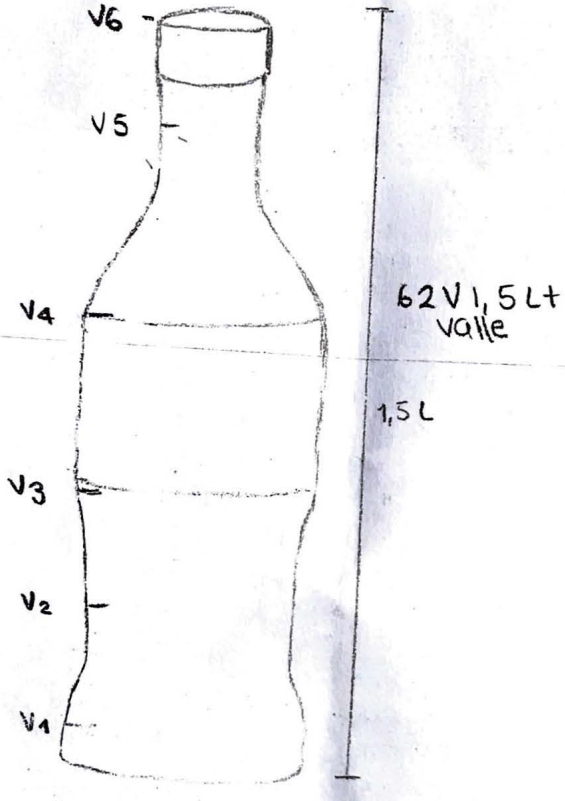
concreto con fibra

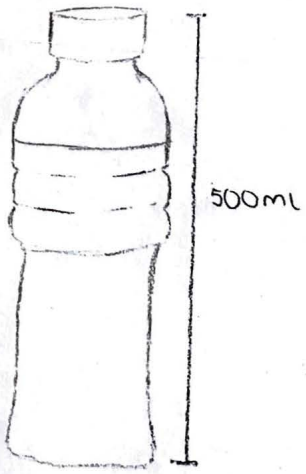
color: blanco
Grava



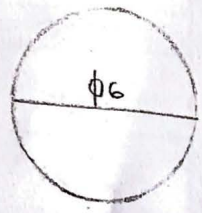
concreto sin fibra

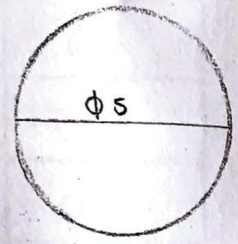
textura: 1 lado liso.
5 Rugoso.

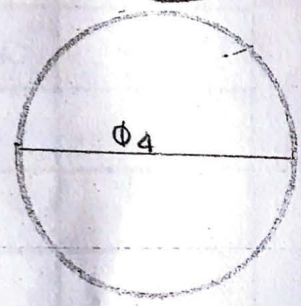

V6
V5
V4
V3
V2
V1
62 V 1,5 Lt
valle
1,5 L

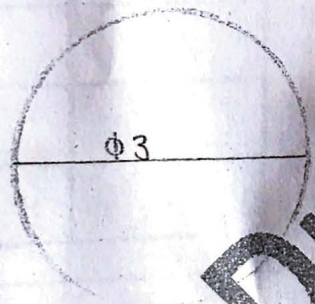

500ml

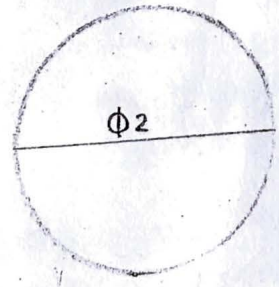
3.2. PET Bricks Drawings. (drawings must be presented, page size. The drawing must be presented using technical engineering format). Add the required pages.

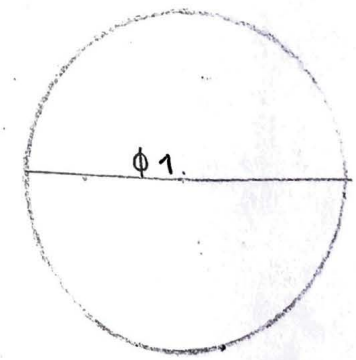




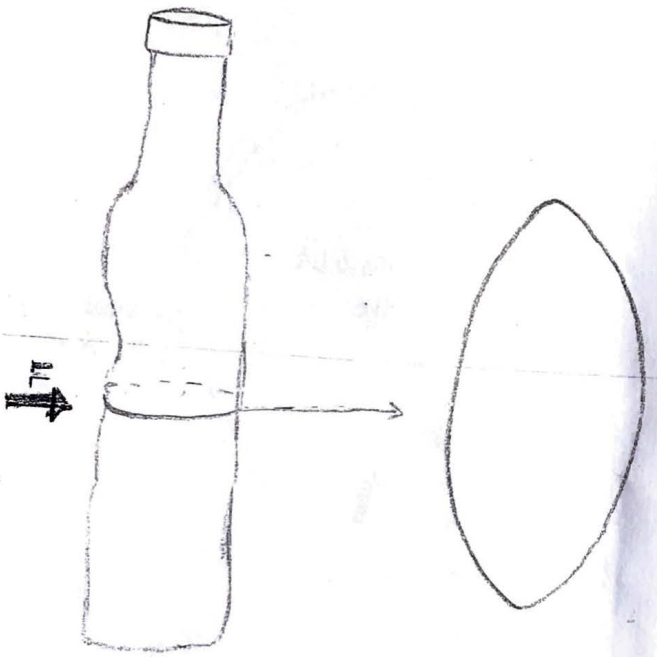








Drawing



3.3 Binders test results (Results according the respective technical standards "NTC"), If some calculation is not possible to achieve, explain why. If additional space is required photocopy this page.

Setting data			Consistency data
Material	time min	Penetration cm	
yeso	3:00	4,3	500 g → 0,5 agua
	6:00	4,3	
	9:00	3,8	
	12:00	0,3	
	15:00	0,1	
	18:00	0.	

Density (Lechatelier, loose)

cemento → 500 g → 0,25 agua
4cm → penetración
→ 0,3 agua
1cm → penetración

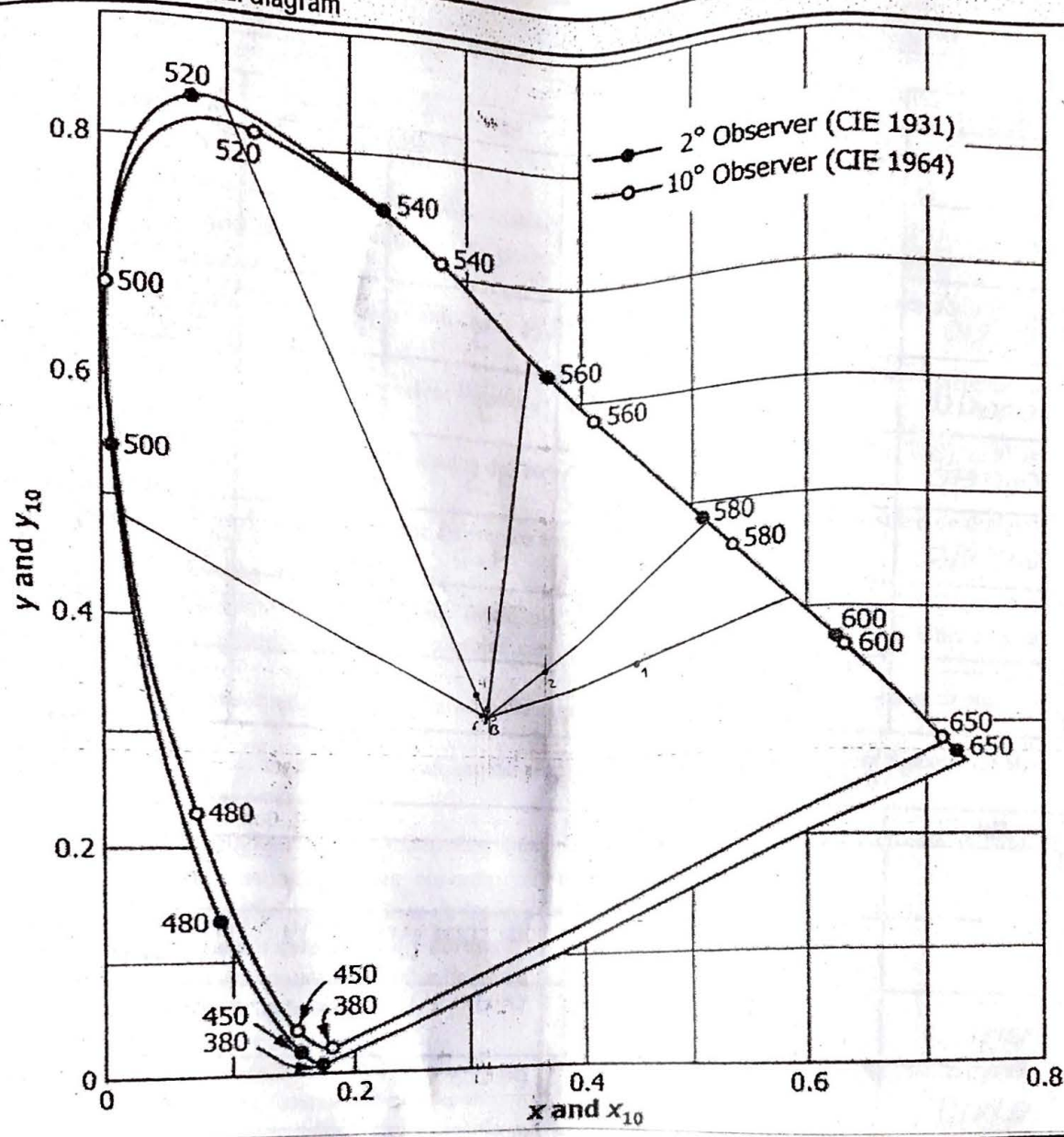
yeso → 300g → 0,3 agua.
0,5 cm → penetración
→ 0,4 agua
4cm → penetración
→ 0,35 agua
0,9 cm → penetracion

3.4. Color Analysis (all samples Bricks, blocks and binders samples)

Procedure	Visual determination			from Representative ROI(image) dominant Color (average of three points)							
Color Space	Munsell			RGB			HSL			CIE 1931	
Sample ID	H	C	V	R	G	B	H	S	L	x	y
① 10R 6/8	10R	8	6	207	125	98	15°	53%	60%	0,4445	0,3632
② 7,5 YR 7/3	7,5 YR	3	7	196	168	143	28°	31%	66%	0,3619	0,3619
③ N9	2,5 R	0	9	227	227	227	0°	0°	89%	0,3127	0,3290
④ 7,5 YR 9/1	7,5YR	1	9	235	225	216	28°	32%	88%	0,3257	0,3385
⑤ 2,5 PB 8/1	2,5PB	1	8	196	200	204	210°	7%	78%	0,306	0,3242
⑥ 5PB 8/1	5PB	1	8	197	200	204	214°	6%	79%	0,3075	0,3242

Additional comments:
① ladrillo prensado
② ladrillo común
③ Mortero
④ lechada
⑤ concreto con fibra
⑥ concreto sin fibra

Locate the samples in the CEI diagram



Additional comments:

4.Geometry and strength of samples (Bricks, blocks)

		Longitud	Ancho	Altura	9	9	9
Sample	Material	length (cm)	width (cm)	height (cm)	W1 (air)	W2 (oven)	W3 (saturated)
Ladrillo Prensado		24,5	5,6	11,8	2952	2948	3223
Ladrillo común		20,1	5,6	9,8	2035	2028	2219
Mortero	Mortero	5	5	5	209	206	243
Lechada	Lechada	5	5	5	196	194	234
Concreto sin fibra	Concreto	9	10	7,5	1674	1644	1743
Concreto con fibra	Concreto	9	10	7,5	1632	1600	1707

Falla. Compresión Prensa Modulo Rotura

Sample	Material	Load(Kn)	Test (comp/MR)	Comments
Ladrillo Prensado			28 KN	
Ladrillo común		5,40	5,7 KN	se partio a la mitad
Mortero	Mortero	10,10		pedazos
Lechada	Lechada	40,60		pedazos
Concreto sin fibra	Concreto		54,4 KN	
Concreto con fibra	Concreto		52,9 KN	
Botella	Plastico Material		25 KN	se fallo horizontal

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BOT.	ϕ1 (mm)	ϕ2 (mm)	ϕ3 (mm)	ϕ4 (mm)	ϕ5 (mm)	ϕ6 (mm)	ϕ int (mm)	h1 (cm)	h2 (cm)	h3 (cm)	h4 (cm)	h5 (cm)
1	61	63,58	62,06	63,40	26,9	29,96	21,30	3	5,6	11,7	14,8	16,7
	62,17	64,05	62,08	62,90	27,45	24,81	21	2,9	5,8	11,6	14,9	16,5
	61,82	64,08	62,16	62,21	27,38	24,87	20,71	3,2	5,3	11,6	14,6	16,8
2	65,10	56,27	54,37	50,70	30,01	33,56	26,43	2,2	9,7	13,1	18	19,8
	65,18	55,70	54,22	50,71	30,18	34,19	26,83	2,1	9,9	13,0	18,1	19,6
	66,09	52,28	54,36	52,49	29,91	34,30	26,20	2,0	9,8	12,9	17,9	19,9
3	70,90	66,97	64,96	68,11	27,45	29,73	20,26	2,1	3,3	13,9	15	17,6
	70,26	66,5	66,22	67,65	27,19	29,77	20,42	2	3,5	13,8	15	17,5
	69,93	66,46	65,43	68,74	27,15	29,78	21,01	1,8	3,6	13,7	15,1	17,4
4	64,25	65,26	61,56	60,43	27,08	29,31	21,33	2,7	5,9	12,1	16,7	21,5
	66,23	59,01	60,23	61,76	26,39	29,66	20,89	2,7	5,8	12,1	16,6	21,6
	66,25	59,67	61,99	61,75	26,86	29,55	21,32	2,6	5,9	12	16,6	21,5
5	65,54	64,89	64,51	48,85	30,52	34,65	25,74	1,7	3,9	9,1	13,5	20,4
	66,02	65,01	64,50	48,72	30,61	34,58	25,69	1,7	3,8	9,0	13,3	20,3
	65,80	65,43	64,41	48,89	30,59	34,48	25,85	1,6	3,8	9,1	13,6	20,3
6	92,76	90,85	91,55	74,87	26,06	29,67	21,39	3,8	12	20,8	24,8	30,1
	92,69	90,84	91,21	74,24	26,15	29,76	21,54	3,6	11,9	20,8	24,6	30
	92,95	92,03	91,08	73,10	26,11	29,69	21,08	3,8	11,9	20,7	24,6	30

62 V1,5 L+ valle.

BOT.	hTt (cm)	hT (cm)	Wb (g)	V1 (g)	V2 (g)	V3 (g)	V4 (g)	V5 (g)	Wbw (g)	WGs (g)	Edad	Género
1	19,0	18,7										
	19,1	18,8	21	96	169	369	470	510	515	837	18	masculino
	19,2	18,7										
2	21,5	21,3										
	21,7	21,5	32	87	289	357	506	534	542	845	18	masculino
	21,6	21,4										
3	20,4	20										
	20,5	20,1	27	80	141	423	465	521	526	873	18	masculino
	20,4	20										
4	23,3	23,3										
	23,4	23,3	23	85	182	361	487	594	597	933	18	masculino
	23,5	23,2										
5	22,3	22,2										
	22,3	22,1	26	87	136	295	418	568	576	920	18	masculino
	22,5	22,3										
6	32,0	31,8										
	31,9	31,8										
	31,8	31,9								1318	18	masculino

62 V1,5 L+ valle.

Elaboró: Laura Sierra, Estudiante de ingeniería civil

Revisó: Ing. Orlando Rincón

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62V1,5Lt valle.

Despues de la falla - Horizontal

BOT.	ϕ1	ϕ2	ϕ3	ϕ4	ϕ5	ϕ6	ϕ int	h1	h2	h3	h4	h5	
6	97,14	100,8	94,43	72,63	25,98	24,27	21,1	4,1	12,4	21,2	25,5	30,2	L
	85,85	85,34	82,97	67,86	26,35	24,70	21,61	3,7	12,2	20,8	25,7	30,2	A
	97,04	101,04	95,61	71,2	26,03	27,09	21,37	3,6	12,1	21,2	25,3	30,3	L

62V1,5Lt valle.

BOT.	hTt (cm)	hT (cm)	Wb (g)	V1	V2	V3	V4	V5	Wbw	WGs	Edad	Género
6	33,9	32,4										
	32,8	32,2	45	224	716	1246	1458	1565	1571	32,9	18	mayoli,00
	32,1	33,3										

Grosor botella → 0,70 mm 0,44 mm
0,52 mm

Elaboró: Laura Sierra, Estudiante de ingeniería civil

Revisó: Ing. Orlando Rincón